

## **REMARKS**

Applicant would like to thank the Examiner for the careful consideration given the present application. The application has been carefully reviewed in light of the Office action, and amended as necessary to more clearly and particularly describe the subject matter which applicant regards as the invention.

Initially, claims 1 and 5 – 10 are cancelled. The cancellation of the claims is made without prejudice. Applicant retains the right to pursue the subject matter of the claims in a future application or applications (namely, divisional application(s)).

Claim 1 was rejected under 35 U.S.C. 112, second paragraph, as being indefinite for including a trademark/tradename. As mentioned above, claim 1 has been cancelled. However, the term KETJEN black was also used in claim 4. Accordingly, the rejection will be discussed as applicable to claim 4.

In rejecting the claim, the Examiner held that the use of a trademark or a trade name cannot properly be used to identify any particular material or product in a claim. As KETJEN black was used to indicate the type of carbon particles in the claim, the Examiner found the claim recitation indefinite. Contrary to the Examiner's assertion, it is submitted that the recitation of "KETJEN black" does not render the claim indefinite. Rather, it is submitted that a person of ordinary skill in the art would understand that KETJEN black is widely used as representing carbon particles that have a hollow shell structure.

In support of this position, applicant has included Appendices A and B. Appendix A shows that there is no active registration for the mark "KETJEN black". As such, contrary to the Examiner's assertion, KETJEN black is not merely a

trademark or trade name. Appendix B is a search conducted on the PTO's website showing that 1,029 issued patents use the term "KETJEN black" in the claim language. Accordingly, even if KETJEN black could be interpreted as being a trademark or trade name, the number of issued patents using the term in their claim language indicates that the term is widely understood by those of ordinary skill in the art.

Thus, the recitation of "KETJEN black" in the claim does not render the claim indefinite. Rather, in view of the fact that "KETJEN black" is not an actively registered mark and is commonly used in claim language, it is submitted that a person of ordinary skill in the art would readily understand the language as representing carbon particles having a hollow shell structure. As such, claim 4 is considered to be allowable over 35 U.S.C. 112, second paragraph. Reconsideration and withdrawal of the rejection is requested.

Claim 4 was rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-25571, for which US 2003/0031912 to Saito et al. is taken as an English equivalent (both of which will hereinafter be referred to as "Saito"). The rejection is traversed for the following reasons.

The invention defined in claim 4 is directed to a fuel cell separator sandwiching from both sides via diffusion layers an anode and a cathode set against an electrolyte film. The separator is made of a mixture of a thermoplastic resin, at least one type of carbon particles, and glass fiber or carbon fiber. A proportion of the thermoplastic resin in the mixture is between about 14 to 20wt%, a proportion of the carbon particles is between 70 to 83.5wt%, and a proportion of the glass or carbon fiber is between about 2.5 to 10 wt%. Further, claim 4 has been amended to

define that the carbon particles include 3 to 20 wt% KETJEN black.

Saito is cited for teaching a fuel cell separator that renders the fuel cell separator of claim 4 obvious. The fuel cell separator of Saito includes 100 weight parts of carbon particles such as graphite or carbon black, 10 – 50 weight parts of a thermoplastic resin such as ethylene-vinyl acetate copolymer, and 0 – 10 weight parts of a carbon fiber or glass fiber. While Saito does not teach an embodiment that is anticipatory of the invention of claim 4, the Examiner found that the invention as a whole would have been obvious because the weight percentage ranges of Saito overlap those of claim 4.

However, Saito does not teach or suggest that the carbon particles include 3 to 20 wt% KETJEN black, as required by claim 4. Rather, Saito does not teach or suggest the use of KETJEN black as a carbon particle, and accordingly is silent as to the relative proportions of KETJEN black in the carbon particles. Thus, as amended, claim 4 recites features that are not taught or suggested by the Saito reference. As such, the cited reference does not render claim 4 obvious.

Reconsideration and withdrawal of the rejection of claim 4 is requested.

New claim 11 has been added for consideration in the present amendment. Claim 11 mirrors the language of original claim 4, but for changing the weight percentage of the carbon or glass fiber. Particularly, the carbon or glass fiber weight percentage is defined in claim 11 as being between 8 to 10 wt%. As will be shown below, Saito fails to teach or suggest a carbon or glass fiber weight percentage that is higher than 7.8%.

The weight parts of Saito are not disclosed as a percentage by weight. Rather, the disclosure refers to "weight parts". The separator of Saito has 100

weight parts of carbon particles, 10 – 50 weight parts of a thermoplastic resin, and 0 – 10 weight parts of a carbon or glass fiber. Assuming the use of the maximum amount of carbon or glass fiber and the fixed 100 weight parts of carbon particles, the below equation determines the weight parts of thermoplastic resin required to achieve the minimum claimed 14% thermoplastic resin, as in claim 11.

$$x/(110 + x) = .14$$

Solving for x yields:

$$x = .14(x) / .86$$

$$x = 17.9$$

Thus, assuming a maximum amount of carbon or glass fiber is used, 17.9 weight parts of thermoplastic resin must be used to meet the features of the claimed invention. With 17.9 weight parts of thermoplastic resin, the maximum weight percentage of carbon or glass fiber is 7.8%. Accordingly, operating within the ranges disclosed in Saito, the separator cannot have carbon or glass fiber of a weight percentage greater than 7.8%.

Thus, as amended, claim 11 defines a range of weight percentage of carbon or glass fiber that is not within the range disclosed by Saito. Particularly, as shown above, the Saito separator cannot have carbon or glass fiber in a weight percentage between 8 and 10. Accordingly, claim 11 recites features that are not taught or suggested by Saito and is therefore considered to be allowable over the art. Favorable consideration of claim 11 is requested.

Additionally, claim 12 has been added for consideration in the present amendment. Claim 12 is similar to claim 4, however limits the thermoplastic resin material to ethylene / ethyl acrylate copolymers, excluding ethylene / vinyl acetate

copolymers. As such, the thermoplastic resin used in the separator of claim 12 is an ethylene/ethyl acrylate copolymers. Saito does not teach or suggest the use of ethylene/ethyl acrylate copolymers as a thermoplastic resin material. Accordingly, claim 12 recites features that are not taught or suggested by Saito, and is therefore considered allowable over the art. Favorable consideration of claim 12 is requested.

In light of the foregoing, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 18-0160, our Order No. SHM-15906.

Respectfully submitted,

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# APPENDIX A



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4	73692544	1567463	KETJEN	TARR	DEAD
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# APPENDIX B

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| 2 <a href="#">7,515,383</a>  | <a href="#">T Magnetic recording medium</a>                                                                                                                   |
| 3 <a href="#">7,514,384</a>  | <a href="#">T Inorganic compound containing active oxygen and process for producing the same</a>                                                              |
| 4 <a href="#">7,514,180</a>  | <a href="#">T Battery with molten salt electrolyte and protected lithium-based negative electrode material</a>                                                |
| 5 <a href="#">7,514,167</a>  | <a href="#">T Catalyst for a water gas shift for a fuel cell system, a method of preparing the same, and a fuel cell system including the same</a>            |
| 6 <a href="#">7,514,021</a>  | <a href="#">T Conductive resin film, collector and production methods therefore</a>                                                                           |
| 7 <a href="#">7,510,678</a>  | <a href="#">T Composite material for bipolar plate</a>                                                                                                        |
| 8 <a href="#">7,505,250</a>  | <a href="#">T Carbon-porous media composite electrode and preparation method thereof</a>                                                                      |
| 9 <a href="#">7,501,194</a>  | <a href="#">T Magnetic recording media with non-magnetic support and radiation cured layer</a>                                                                |
| 10 <a href="#">7,499,664</a> | <a href="#">T Image processing apparatus, process cartridge, and cleaning system with residual toner retaining unit</a>                                       |
| 11 <a href="#">7,498,097</a> | <a href="#">T Fuel cell and production method thereof</a>                                                                                                     |
| 12 <a href="#">7,496,318</a> | <a href="#">T Charging device and image forming apparatus</a>                                                                                                 |
| 13 <a href="#">7,495,181</a> | <a href="#">T Electromagnetic wave absorber</a>                                                                                                               |
| 14 <a href="#">7,494,746</a> | <a href="#">T Electrolyte for rechargeable lithium battery, and rechargeable lithium battery including same</a>                                               |
| 15 <a href="#">7,493,064</a> | <a href="#">T Electric conductive member, process cartridge and image forming apparatus</a>                                                                   |
| 16 <a href="#">7,489,497</a> | <a href="#">T Electrochemical device</a>                                                                                                                      |
| 17 <a href="#">7,486,911</a> | <a href="#">T Elastic member, process for manufacturing thereof and mass production process thereof, process cartridge, and electrophotographic apparatus</a> |
| 18 <a href="#">7,486,497</a> | <a href="#">T Electrode for electric double layer capacitor, method for manufacturing same, electric double layer capacitor, and conductive adhesive</a>      |